

What is claimed is

- 5 (A) A thermally curable hot-melt adhesive composition, comprising  
 a prepolymer having isocyanate groups, a number average molecular mass  
 Mn of 700 to 6000 and wherein 50 to 100% of the reactive isocyanate  
 groups of the prepolymer are blocked, said prepolymer being the reaction  
 product of
- 10 (1) at least one straight-chain polyester which is at least semi-crystalline  
 with
- (2) at least one straight-chain polyester selected from the group consisting  
 of amorphous polyesters and liquid polyesters,
- (3) optionally at least one polyether, and
- (4) at least one diisocyanate; and
- 15 (B) at least one reactive component selected from the group consisting of  
 diamines, epoxide adducts of diamines, and polyalcohols.
2. The adhesive of claim 1 wherein prepolymer A is obtained by  
 reacting in admixture with at least one polyether.
- 20 3. The adhesive of claim 2 in which the polyethers of prepolymer A are  
 selected from the group consisting of polyethylene glycol, polypropylene glycol,  
 polytetramethylene glycol and polypropylene glycol modified with ethylene  
 oxide.
- 25 4. The adhesive of claim 1 wherein prepolymer A is obtained from a  
 reaction mixture comprising
- (1) 25 to 55 wt-% of at least one straight-chain, at least semi-crystalline  
 polyester,
- 30 (2) 1 to 45 wt-% of at least one straight-chain polyester selected from  
 the group consisting of amorphous polyesters and liquid polyesters,
- (3) 0 to 40 wt-% of at least one polyether, and
- (4) at least one diisocyanate;
- wherein the weight percentages are based on the combined weight of the  
 polyesters and polyethers.
- 35 5. The adhesive of claim 4 in which the prepolymer A is obtained from a  
 reaction mixture comprising

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- (1) 25 to 55 wt-% of at least one straight-chain, at least semi-crystalline polyester,
  - (2) 15 to 20 wt-% of at least one straight-chain polyester selected from the group consisting of amorphous polyesters and liquid polyesters,
  - (3) 0 to 40 wt-% of at least one polyethers, and
  - (4) at least one diisocyanate;
- wherein the weight percentages are based on the combined weight of the polyesters and polyethers.

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6. The adhesive of claim 1 in which the least semi-crystalline, straight-chain polyesters are prepared from dicarboxylic acids selected from adipic acid and adipic acid derivatives, and polyols selected from ethylene glycol and butanediol-1,4.

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7. The adhesive of claim 1, wherein the amorphous and liquid polyesters are prepared by reacting aliphatic, cycloaliphatic or aromatic dicarboxylic acids and the derivatives thereof, with diols.

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8. The adhesive of claim 1 in which component B is selected from the group consisting of aliphatic, cycloaliphatic, araliphatic and aromatic diamines; derivatives of dicyclohexyl methane diamine; amino-functional polypropylene glycols; glycerin; trimethylolpropane; hexanediol-1,6; decanediol-1,10; polyether alcohols; polyester alcohols; ricinoleic oil; and polyols based on hydrated dimeric fatty acids.

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9. The adhesive of claim 1 wherein the equivalent weight ratio of isocyanate to amine in the adhesive composition is from 1:1 to 1:5.

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10. The adhesive of claim 1, wherein the equivalent ratio of diol to diisocyanate is from 1:1 to 1:3.

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